

**SLOVENSKI STANDARD
SIST EN 150013:2002**

01-september-2002

Blank detail specification: Current regulator and current reference diodes

Blank Detail Specification: Current regulator and current reference diodes

Vordruck für Bauartspezifikation: Stromstabilisator- und Stromfrequenz-Dioden

Spécification particulière cadre: Diodes régulatrices de courant de référence

Ta slovenski standard je istoveten z: EN 150013:1991

[SIST EN 150013:2002](https://standards.iteh.ai/catalog/standards/sist/102aedb2-95f1-40e3-8ffc-0b4e3f6b9343/sist-en-150013-2002)

<https://standards.iteh.ai/catalog/standards/sist/102aedb2-95f1-40e3-8ffc-0b4e3f6b9343/sist-en-150013-2002>

ICS:

31.080.10 Diode Diodes

SIST EN 150013:2002 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 150013:2002](#)

<https://standards.iteh.ai/catalog/standards/sist/102aedb2-95f1-40e3-8f1c-0b4e3f6b9343/sist-en-150013-2002>

EUROPEAN STANDARD
 NORME EUROPÉENNE
 EUROPÄISCHE NORM

EN 150013

December 1991

UDC:

Descriptors: Quality, electronic components, diodes

English version

Blank Detail Specification: Current regulator and current reference diodes

Spécification Particulière Cadre:
 Diodes régulatrices de courant de
 référence

Vordruck für Bauartspezifikation:
 Stromstabilisator- und
 Stromfrequenz-Dioden

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This European Standard was approved by the CENELEC Electronic Components Committee (CECC) on 25 November 1991. The text of this standard consists of the text of CECC 50013 Issue 1 1984 of the corresponding CECC Specification. CENELEC members are bound to comply with CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the General Secretariat of the CECC or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CECC General Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. The membership of the CECC is identical, with the exception of the national electrotechnical committees of Greece, Iceland and Luxembourg.

CECC

European Committee for Electrotechnical Standardization
 Comité Européen de Normalisation Electrotechnique
 Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 150013:2002

<https://standards.iteh.ai/catalog/standards/sist/102aedb2-95f1-40e3-8f1c-0b4e3f6b9343/sist-en-150013-2002>

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC

English version



Harmonized System of Quality Assessment for
Electronic Components

BLANK DETAIL SPECIFICATION:
CURRENT REGULATOR
AND CURRENT REFERENCE
DIODES

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 150013:2002

Système Harmonisé d'Assurance de la Qualité /sist/102ae4b2-95f1-40e3-8f1c-
des Composants Electroniques /sist-en-150013-2002

SPECIFICATION PARTICULIERE CADRE:
DIODES REGULATRICE
DE COURANT ET DE COURANT
DE REFERENCE

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

VORDRUCK
FÜR BAUARTSPEZIFIKATION:
STROMSTABILISATOR-
UND STROMREFERENZDIODEN

1 Edition
Issue
Ausgabe

CECC 50013

1984

EN 150013:1991**Foreword**

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The Object of the system is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby accepted by all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for Current Regulator and Current Reference Diodes. It should be read in conjunction with document CECC 00100: Basic Rules (1974).

At the date of printing of this document the member countries of the CECC are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.


Preface

This blank detail specification was prepared by the British members of CECC Working Group 5 "*Semiconductor Diodes and Transistors*". It is one of a series of blank detail specifications for Discrete Semiconductor Devices, relating to the generic specification CECC 50000.

The text of this blank detail specification was circulated to the CECC for voting in the documents listed below and was ratified by the President of the CECC for printing as a CECC Specification.

| Document | Voting Date | Report on the Voting |
|-------------------------|-------------|-------------------------|
| CECC (Secretariat) 1143 | April 1982 | CECC (Secretariat) 1212 |

Texts between square brackets give guidelines on how to fill in the blank detail specification

| [Name (address) of responsible ONH [and possibly of organization from which specification is available].] [1] | Page . . . of . . . | CECC 50013 XXX [2] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|--------|--|--------|-------|------|------|------|-----|--|-------------------------|---|---|--|-----|--|-----------|---|---|--|-----|--|--|--|--|--|-------|--|-----------|--|---|--|-------|--|-----------------------|--|---|--|-----|----------------------------------|-------|--|---|--|-----|----------------------------------|----------|--|---|--|--|--|
| ELECTRONIC COMPONENT OF ASSESSED QUALITY IN ACCORDANCE WITH: CECC 50000, Issue [and national reference if different] [3] | [Number of CECC detail specification, plus issue number and/or date]  [4] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>1 Mechanical description [7]</p> <p>Either outline references (code A) or base and case references (codes B + C):</p> <p>— from IEC 191-2:</p> <p>— national [if desired]</p> <p>OUTLINE DRAWING AND CONNECTIONS (Terminal connected to case, if any) [may be transferred to, or given with more details in, clause 9 of this document]</p> <p>MARKING: Letters and figures/colour code [see 2.5.6 of CECC 50000 and/or clauses 6 of this document]</p> <p>Polarity indication if special method is used.</p> | <p>DETAIL SPECIFICATION FOR: [5]</p> <p>[Type number(s) of relevant device(s) and, if appropriate structurally similar devices]</p> <p>ORDERING INFORMATION: See clause 7 of this document</p> | <p>2 Short description [6]</p> <p>Semiconductor material: Ge/Si/.....</p> <p>Encapsulation : metal/glass/plastic/..</p> <p>Application : Current Regulator (Reg) Current Reference (Ref)</p> <p>Power : ambient-rated (T_{amb}) case-rated (T_{case})</p> <p>[Some important quick reference data: voltage, power, may be added]</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <p>3 Level(s) of quality assessment [8]</p> <p>[chosen from Appendix IIA of CECC 50000]</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4 Limiting values (Absolute maximum rating system) [9]</p> <p>These apply over the operating temperature range unless otherwise stated.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th rowspan="2">Clause No. CECC 50013</th> <th rowspan="2">[Repeat only clause numbers used, with text. Additional values, if any, shall be given at the appropriate place without clause number(s). Curves should preferably be given in clause 9 of this document].</th> <th rowspan="2">Symbol</th> <th colspan="3">Value</th> </tr> <tr> <th>Min.</th> <th>Max.</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>4.1</td> <td>Minimum and maximum operating ambient or case temperatures</td> <td>T_{amb} or T_{case}</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>4.2</td> <td>Minimum and maximum storage temperatures</td> <td>T_{stg}</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>4.3</td> <td>Power dissipation: Special requirements for ventilation/mounting should be specified.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>4.3.1</td> <td>Maximum power dissipation at T_{amb} or $T_{case} = 25\text{ }^{\circ}\text{C}$ and temperature derating curve</td> <td>P_{tot}</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>4.3.2</td> <td>Maximum virtual (equivalent) junction temperature, and absolute limit of power dissipation</td> <td>T_{vj} P_{tot}</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>4.2</td> <td>Maximum value of reverse current</td> <td>I_R</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>4.2</td> <td>Maximum value of forward voltage</td> <td>V_{S2}</td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table> | Clause No. CECC 50013 | [Repeat only clause numbers used, with text. Additional values, if any, shall be given at the appropriate place without clause number(s). Curves should preferably be given in clause 9 of this document]. | Symbol | Value | | | Min. | Max. | Unit | 4.1 | Minimum and maximum operating ambient or case temperatures | T_{amb} or T_{case} | X | X | | 4.2 | Minimum and maximum storage temperatures | T_{stg} | X | X | | 4.3 | Power dissipation: Special requirements for ventilation/mounting should be specified. | | | | | 4.3.1 | Maximum power dissipation at T_{amb} or $T_{case} = 25\text{ }^{\circ}\text{C}$ and temperature derating curve | P_{tot} | | X | | 4.3.2 | Maximum virtual (equivalent) junction temperature, and absolute limit of power dissipation | T_{vj} P_{tot} | | X | | 4.2 | Maximum value of reverse current | I_R | | X | | 4.2 | Maximum value of forward voltage | V_{S2} | | X | | | |
| Clause No. CECC 50013 | | | | [Repeat only clause numbers used, with text. Additional values, if any, shall be given at the appropriate place without clause number(s). Curves should preferably be given in clause 9 of this document]. | Symbol | Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Min. | Max. | Unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.1 | Minimum and maximum operating ambient or case temperatures | T_{amb} or T_{case} | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 | Minimum and maximum storage temperatures | T_{stg} | X | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.3 | Power dissipation: Special requirements for ventilation/mounting should be specified. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.3.1 | Maximum power dissipation at T_{amb} or $T_{case} = 25\text{ }^{\circ}\text{C}$ and temperature derating curve | P_{tot} | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.3.2 | Maximum virtual (equivalent) junction temperature, and absolute limit of power dissipation | T_{vj} P_{tot} | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 | Maximum value of reverse current | I_R | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 | Maximum value of forward voltage | V_{S2} | | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00200: <i>Qualified Products List</i>.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

5 Electrical characteristics

See clause 8 of this document for inspection requirements (Groups A and C).

In the following table, characteristics marked X in the "Value" columns shall be given; characteristics marked + in the "Measured" column are measured in Group A or Subgroup C2.

Signs between brackets correspond to characteristics given as "where appropriate" or as alternatives:

– Those characteristics marked "where appropriate" in this clause and in the inspection section shall either be omitted or, if specified, shall then be measured.

[– For equivalent characteristics given as alternatives, the choice should preferably be left open to allow the use of the same detail specification by different manufacturers or countries.

Repeat only clause numbers used, with text. Additional characteristics, if any, shall be given at the appropriate place without clause number(s).

When several devices are included in the same detail specification, the relevant values should be given on successive lines, where possible to avoid repeating identical values].

| Clause No. | Measured | Characteristics and conditions at T_{amb} or $T_{case} = 25\text{ }^{\circ}\text{C}$ unless otherwise stated | Symbol | Value | | |
|------------|----------|--|--------------------------------------|-------|------------|------|
| | | | | Min. | Max. | Unit |
| 5.1 | + | Minimum and maximum value of regulator current at a specified voltage V_{S1} (d.c. or pulse as specified in detail specification) | I_{S1} | X | X | |
| 5.2 | + | Maximum value of regulator current at the maximum recommended operating voltage V_{S2} | I_{S2} | | X | |
| 5.3 | + | Maximum value of regulator current at regulator voltage V_{S2} at high temperature | I_{S3} | | X | |
| 5.4 | + | Maximum regulator current variation for a specified change of V_S Two specified values of V_S on either side of V_{S1} | ΔI_S | | X | |
| 5.5 | + | Maximum value of small signal regulator conductance at specified frequency and working voltage V_{S1} | g_s | | X | |
| 5.6 | (+) | Where appropriate, maximum value of knee conductance at specified voltage V_K and frequency | g_k | | (X) | |
| 5.7 | (+) | Where appropriate, maximum limiting voltage at specified limiting current I_L (Preferably $0.8 I_{S1}$ min.) | V_L | | (X) | |
| 5.8 | + | Minimum and maximum values at temperature coefficient of regulator current. The voltages specified in 5.1 and over a specified temperature range | ∞I_S | X | X | |
| 5.9 | + | When virtual junction temperature is quoted as a rating: Maximum value of thermal resistance junction ambient or case. | $R_{th(j-case)}$ $R_{th(j-case)}$ | | (X) (X) | |

6 Marking

[Any particular information other than given in box (7) on front page and/or 2.5.6 of CECC 50000 shall be precised here].

7 Ordering information

The following minimum information is necessary to order a specific device, unless otherwise specified:

— Precise type number.

- CECC reference of detail specification with issue number and/or date when relevant.
- Level of quality assessment as defined in Appendix IIA of CECC 50000, and, if required, screening sequence as defined in Appendix VI of CECC 50000
- Any other particulars.

[Example: 1N000 to CECC 500XX-000 Issue 1, Level F]

8 Test conditions and inspection requirements

These are given in the following tables, where the values and exact test conditions to be used should be specified as required for a given type, and as required by the relevant test in CECC 50000.

[When several devices are included in the same detail specification, the relevant conditions and/or values should be given on successive lines, where possible, avoiding repetition of identical conditions and/or values.

The choice between alternative tests should preferably be left open, unless very sound technical reasons forbid this. Although such tests are not strictly equivalent, they are meant to achieve the same results which are to assess the correct manufacture of a device. Alternatives are provided to take into account different equipments or methods of measurement used in various countries.

In this section, references to clause numbers are made with respect to CECC 50000 unless otherwise stated.

Group A Lot-by-lot

iTeh STANDARD PREVIEW (standards.iteh.ai)

All tests are non-destructive
(3.5.6 of CECC 50000)

| Examination or test | Ref | Conditions at T_{amb} or $T_{case} = 25\text{ °C}$ unless otherwise stated | Inspection requirements | | | Assessment |
|-------------------------------|-------------|---|-------------------------|------|------|---|
| | | | Limits | | | |
| | | | Min. | Max. | Unit | |
| Subgroup A1 | | | | | | [For sampling requirements either refer to, or reproduce, values of Appendix IIA of CECC 50000 (according to applicable level(s) of quality assessment stated in box 8 on front page).] |
| Visual inspection | 4.2.1 | 4.2.1 | | | | |
| Subgroup A2(a) | | | | | | |
| Non-operative devices | 4.3.4 | Inverted polarity | | | | |
| | | $I_{S1} > 3,0 \times I_S \text{ max.}$ | X | | | |
| | | $I_{S1} < 0,1 \times I_S \text{ min.}$ [State relevant limits] | | X | | |
| Subgroup A2(b) | | | | | | |
| Regulator current I_{S1} | 4.3.4/D.051 | $V_S = \text{Specified value } V_{S1}$ | X | X | | |
| Regulator current I_{S2} | 4.3.4/D.051 | $V_S = \text{Maximum value } V_{S2}$ | | X | | |
| <i>Where appropriate</i> | | | | | | |
| Limiting voltage V_L | 4.3.4/D.054 | $I = I_L$ | | X | | |